



NASHVILLE AREA

**Metropolitan Planning Organization**

# Nashville Regional Freight & Goods Movement Plan – Phase

## III

### Freight Advisory Committee Meeting #1

# Welcome and Project Overview

➡ Phase III of Nashville Area MPO Regional Freight & Goods Movement Study

➡ Highlights of Phase III work are:

- Development of a guiding vision for the region's freight system including a designated truck network
- Recommendations for optimizing local ordinances and land use plans and policies
- An update of the Nashville regional freight profile
- Analysis of future conditions including freight flows and future land uses

# Agenda

- ➡ Introductions
- ➡ Key Findings from Regional Freight Profile Update
- ➡ Brainstorm Freight Vision/Regional Truck Route Network
- ➡ Discussion of Freight and Land Use Issues
- ➡ Wrap-Up and Next Steps



# **KEY FINDINGS FROM EXISTING AND FUTURE CONDITIONS REPORT**

# Trucking is Largest Freight Mode

Commodity	Truck Tons	Water Tons	Rail Tons	Air Tons	Total Tons
Sand, Gravel, Stone and Nonmetallic Minerals	27,079,885	1,543,325	81,280	140	28,704,631
Truck Drays to/from DCs, Railyards and Airports	9,096,890	—	—	—	9,096,890
Coal	43,567	5,680,763	—	—	5,724,330
Fuel, Petroleum Products, and Fuel Oils	8,690,017	146,432	6,520	8	8,842,978
Agricultural and Food Products	6,360,749	—	102,520	1	6,463,270
Waste and Scrap	2,981,062	215,357	161,264	1	3,357,683
Motor Vehicles and Parts	846,667	—	793,080	1,561	1,641,308
Subtotal	55,098,837	7,585,877	1,144,664	1,711	63,831,090
Other Commodities	11,055,078	497,301	2,003,445	38,004	13,593,827
All Commodities (Tons)	66,153,915	8,083,178	3,148,109	39,715	77,424,917
Tons (%)	85%	10%	4%	< 1%	100%
All Commodities (Values in \$ billions)	74.0	0.9	13.2	4.3	92.3
Value (%)	80%	1%	14%	5%	100%

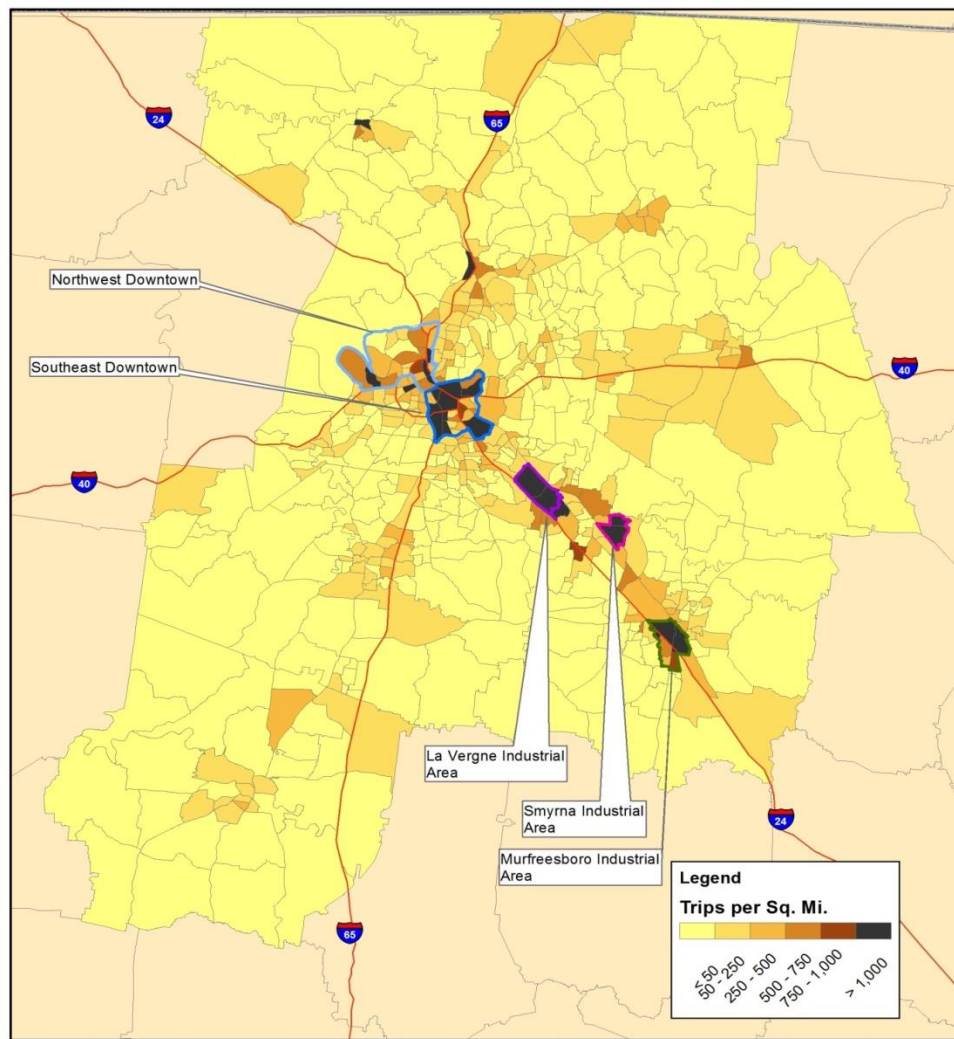
# Truck Counts Highest on Interstates

Rank	County	Route No.	Location	Truck AADT
<b>1</b>	Robertson	I-65	S. of SR 25	16,740
<b>2</b>	Davidson	I-24	Near I-24 & I-440 Jct.	12,569
<b>3</b>	Davidson	I-40	Near Wilson Co Line	12,131
<b>4</b>	Wilson	I-40	S.W. Lebanon	11,498
<b>5</b>	Rutherford	I-24	[Loops] SE of Church St. (U.S. 231)	10,781
<b>6</b>	Davidson	SR 254	Near Brentwood E of I-65	10,269
<b>6</b>	Robertson	I-24	Near Montgomery Co. Line	9,326
<b>7</b>	Williamson	I-65	South of SR 840	8,930
<b>8</b>	Wilson	I-40	West of SR 840	8,906
<b>9</b>	Williamson	I-65	N of SR 840, S of Franklin	8,043
<b>10</b>	Maury	I-65	South of Saturn Pkwy.	7,406
<b>11</b>	Davidson	I-65	N of Thompson Lane	6,497
<b>12</b>	Rutherford	SR 840	B/N SR 1 and I-24	6,368
<b>13</b>	Davidson	I-440	S of I-40	6,270
<b>14</b>	Rutherford	SR 840	West of I-24	4,988
<b>15</b>	Davidson	SR 155	Briley Pkwy-West Nashville, Near I-40	4,595
<b>16</b>	Wilson	SR 840	South of Stewarts Ferry Pike	4,428
<b>17</b>	Sumner	SR 006	Hendersonville	4,308
<b>18</b>	Davidson	SR 011	Nolens Pike-North of Harding Place	4,095
<b>19</b>	Davidson	SR 001	Near Jct SR 106 & SR 1 Westend	4,014
<b>20</b>	Davidson	SR 106	Near I-440	3,941

# High Percentage of Through Truck Trips

Truck Trip Type	Millions of Tons	Percent of Total
Through Nashville Region	99.6	62%
Into Nashville	36.4	23%
Out of Nashville	24.6	15%
<b>Total</b>	<b>160.6</b>	<b>100%</b>

# Clustered Truck Trip Generation

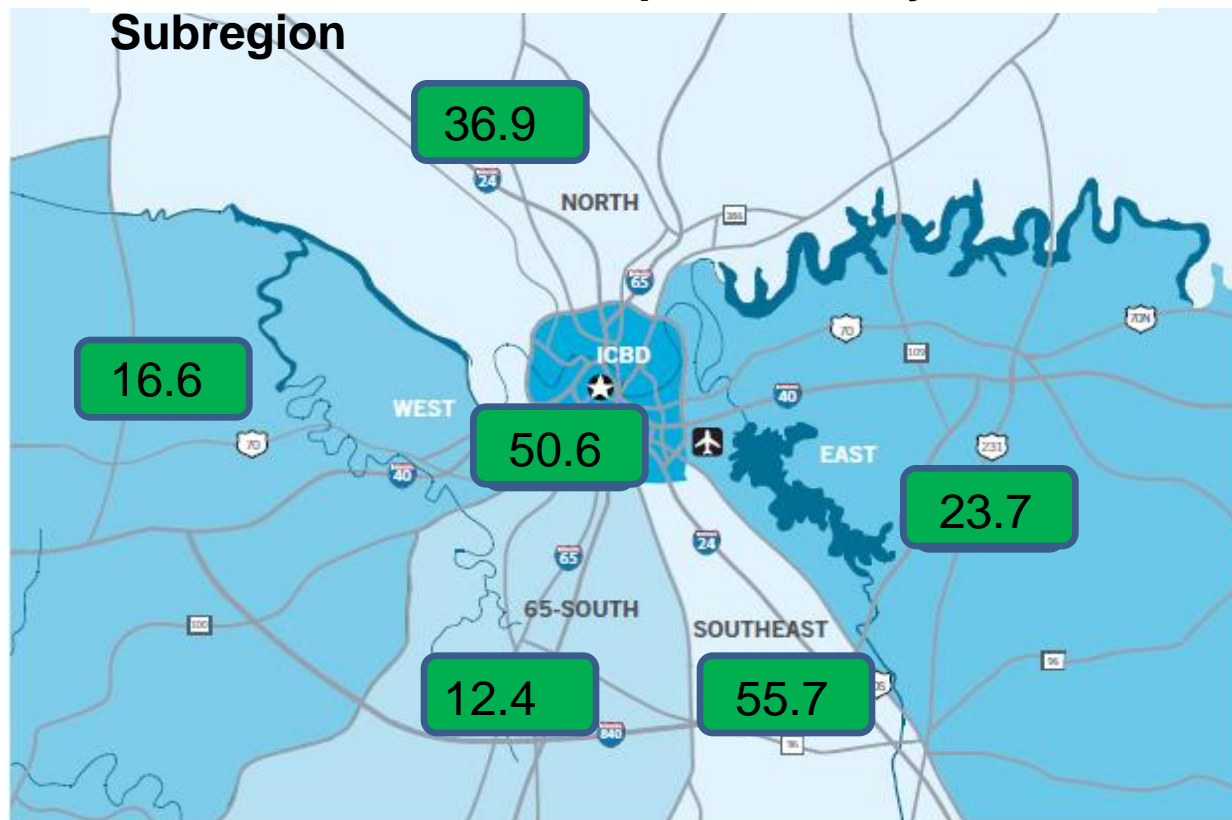


- ➔ 41% of all truck trip ends in Nashville area are in one of these five subregions
- ➔ 71% of all truck trip ends in Nashville area are in Davidson or Rutherford Counties



# Clustered Freight Facilities

Millions of Industrial Square Feet by Subregion



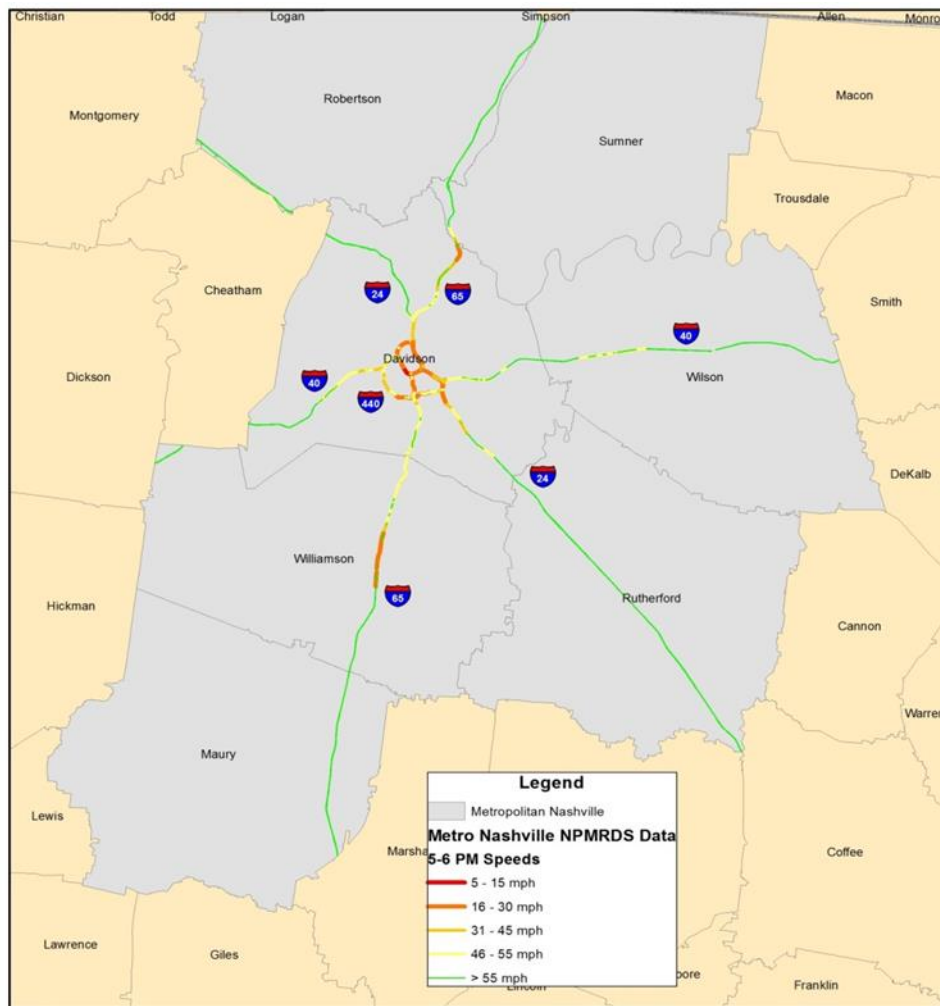
- ➡ 54% of all industrial sq. ft. is in the CBD and SE
- ➡ Consistent with truck trip ends

# Different Building Options by Subregion

- ➔ Southeast subregion has larger buildings, typically at lower prices
- ➔ CBD has smaller buildings, typically at higher prices

Subregion	Existing Industrial Square Feet	Total Number of Buildings	Vacancy Rate	Average Square Feet per Building	Average Asking Rates (per Square Feet)
<b>Southeast</b>	55,703,566	480	9.4%	116,049	<b>\$3.66</b>
<b>CBD</b>	50,600,040	1,010	3.7%	50,099	<b>\$5.48</b>
<b>North</b>	36,903,868	436	7.3%	84,642	<b>\$3.01</b>
<b>East</b>	23,730,708	187	10.2%	126,902	<b>\$3.07</b>
<b>West</b>	16,600,762	205	4.6%	80,979	<b>\$5.59</b>
<b>65-South</b>	12,375,336	228	9.4%	54,278	<b>\$4.19</b>
<b>Total</b>	195,914,280	2,546	7.2%	76,950	n/a

# Nashville Region Afternoon Congestion



- ➡ Congestion is concentrated in CBD
- ➡ I-65 south of Nashville has worst afternoon congestion
- ➡ I-65 north of Nashville has significant congestion
- ➡ I-24 southeast has little congestion south of LaVergne

# Truck-Involved Crashes by Facility Type

Road Functional Classification	Fatal	Serious Injury	Injury	Non-injury	Total
Interstates	31	91	974	2,748	3,844
State Routes	21	73	605	2,072	2,771
All Others	8	20	239	953	1,220
Total	60	184	1,818	5,773	7,835

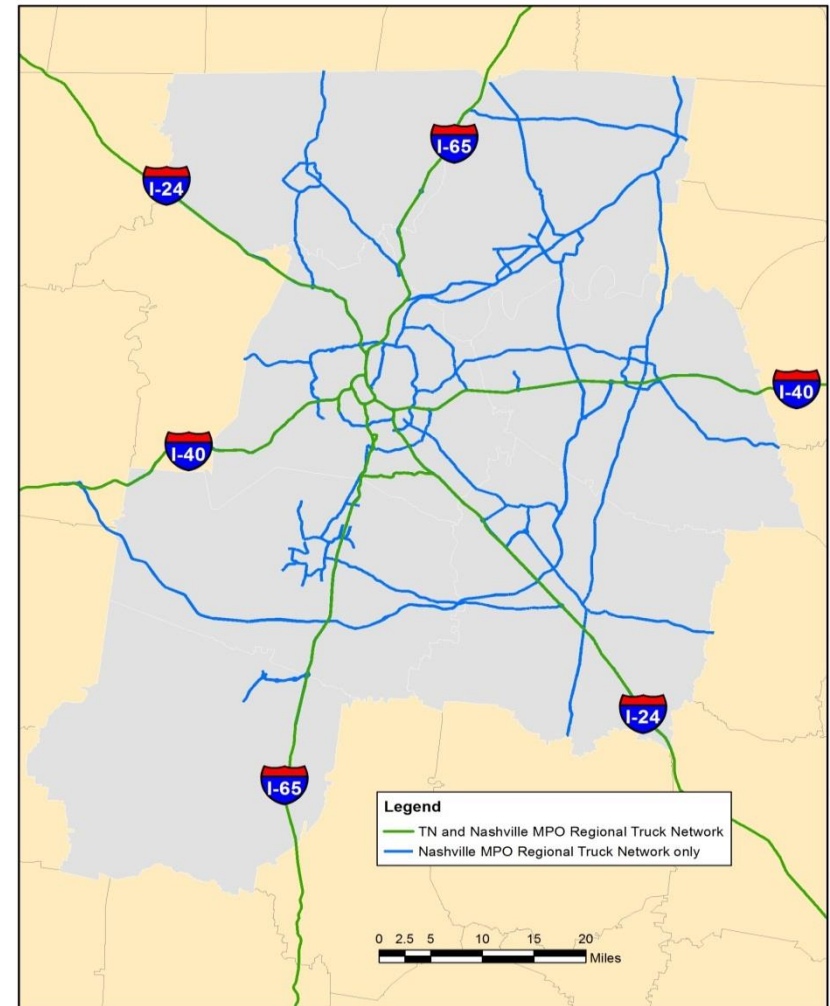
# **FREIGHT VISION/DISCUSSION OF REGIONAL TRUCK ROUTE NETWORK**

# Truck Route Development Process

- ➡ Assemble Federal, state, and regional truck route information
- ➡ Assemble locally designated truck routes and prohibitions
- ➡ Conduct Trucker's Forum to discuss key roads utilized
- ➡ Identify key facilities for other modes and land uses nearby to roads considered for regional truck route
- ➡ Develop preliminary truck route
- ➡ Finalize truck route based on feedback from multiple sources
- ➡ Develop design features for truck route in heavy urban, suburban, and rural locations

# Existing State and Regional Truck Routes

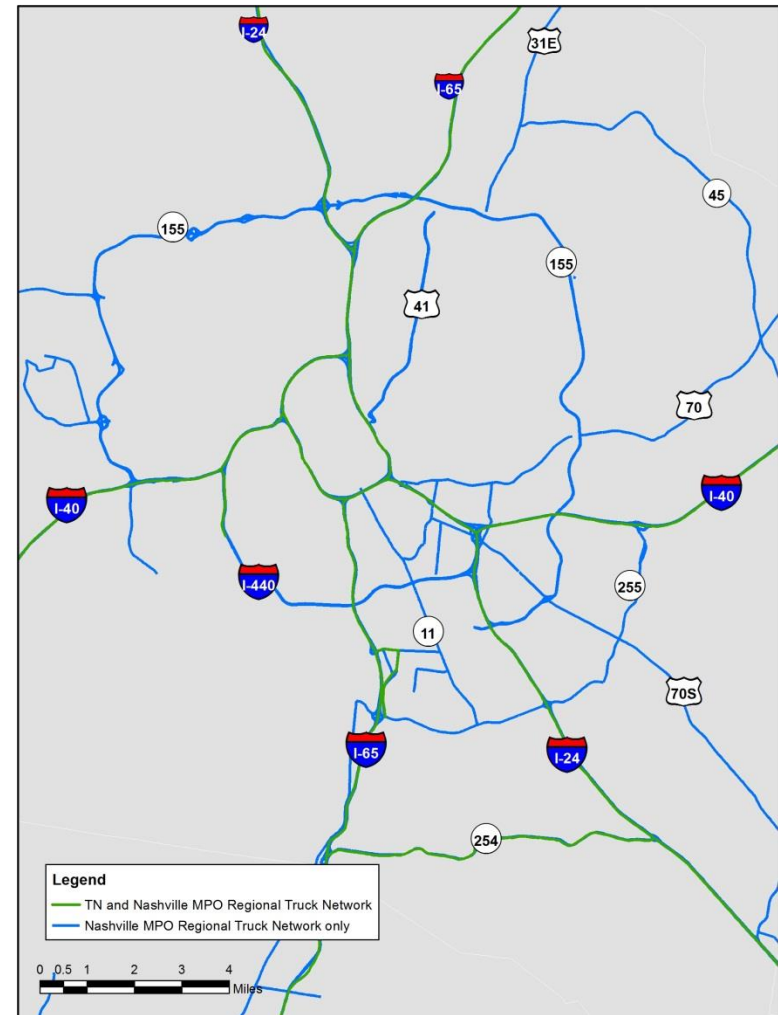
- ➡ MPO identified freight routes as part of Phase 1 of Nashville Freight Plan
- ➡ TDOT in conjunction with MPO identified a set of roads from the region to be included in the statewide freight priority network



# Potential Local Components to Regional Truck Route

➡ Meeting with trucking community identified several additional local roads important for delivery of goods, particularly in downtown Nashville

- Ellington Parkway
- Harding Pike
- Hillsborough Pike
- Rosa Parks Blvd





# Existing Local Truck Routes and Prohibitions

Jurisdiction	Truck Designated Route(s)	Truck Prohibited Route(s)	Roads Not Specified in Ordinance	No Truck Route (Designation or Prohibition) listed in Local Ordinance	Unknown at this time (no response or ordinance found)
<i>Maury County</i>				●	
City of Columbia	●		●		
City of Mount Pleasant		●			
City of Spring Hill		●			
<i>Robertson County</i>				●	
Town of Coopertown				●	
City of Greenbrier				●	
City of Millersville				●	
City of Springfield				●	
City of White House				●	
<i>Rutherford County</i>					●
City of La Vergne				●	
City of Murfreesboro		●			
City of Smyrna		●	●		
<i>Sumner County</i>					●
City of Gallatin	●	●			
City of Goodlettsville		●	●		
City of Hendersonville	●				
City of Millersville				●	
City of Portland				●	
City of White House				●	
<i>Wilson County</i>					●
City of Lebanon	●				
City of Mt. Juliet	●				
<i>Williamson County</i>				●	
City of Brentwood				●	
City of Fairview				●	
City of Franklin	●	●			
Town of Nolensville		●			
Town of Thompson's Station		●			
<i>Nashville and Davidson County</i>		●	●		

# Regional Truck and Bicycle Networks

- ➡ Desirable to separate regional truck and bicycle network
- ➡ Current regional bicycle network is disconnected and relatively sparse
- ➡ Significant expansion of the regional bicycle network is planned

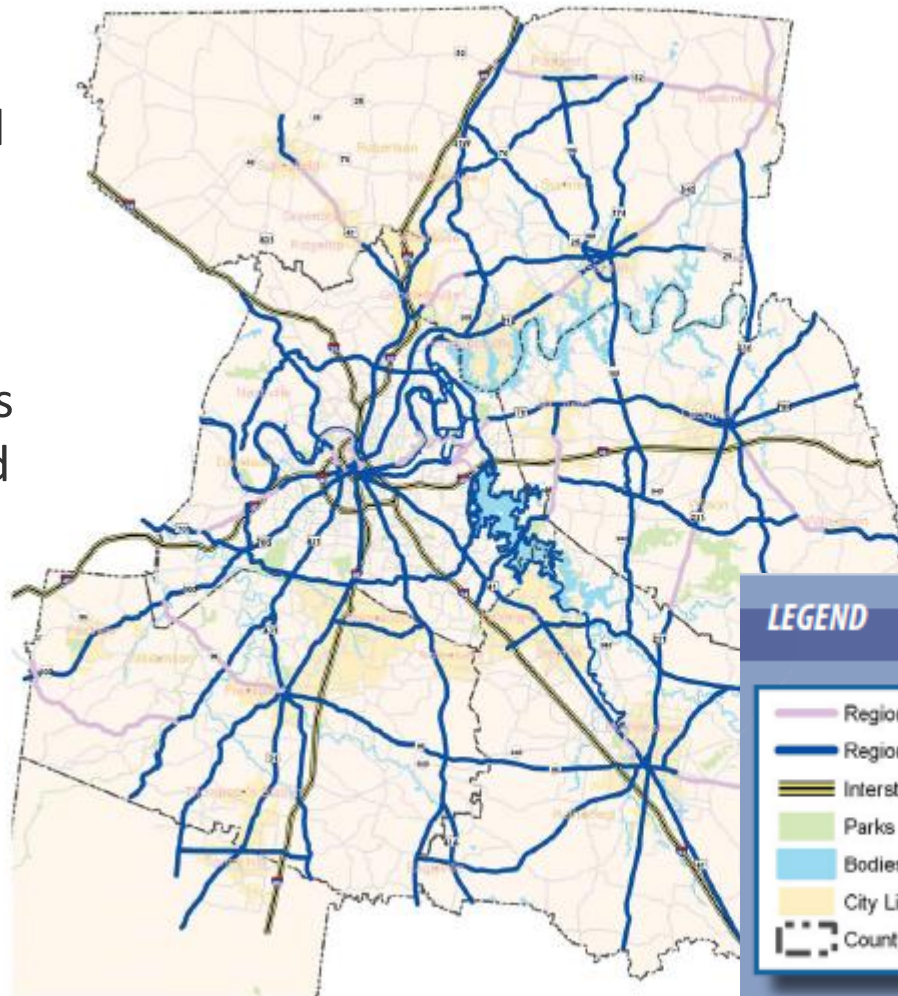


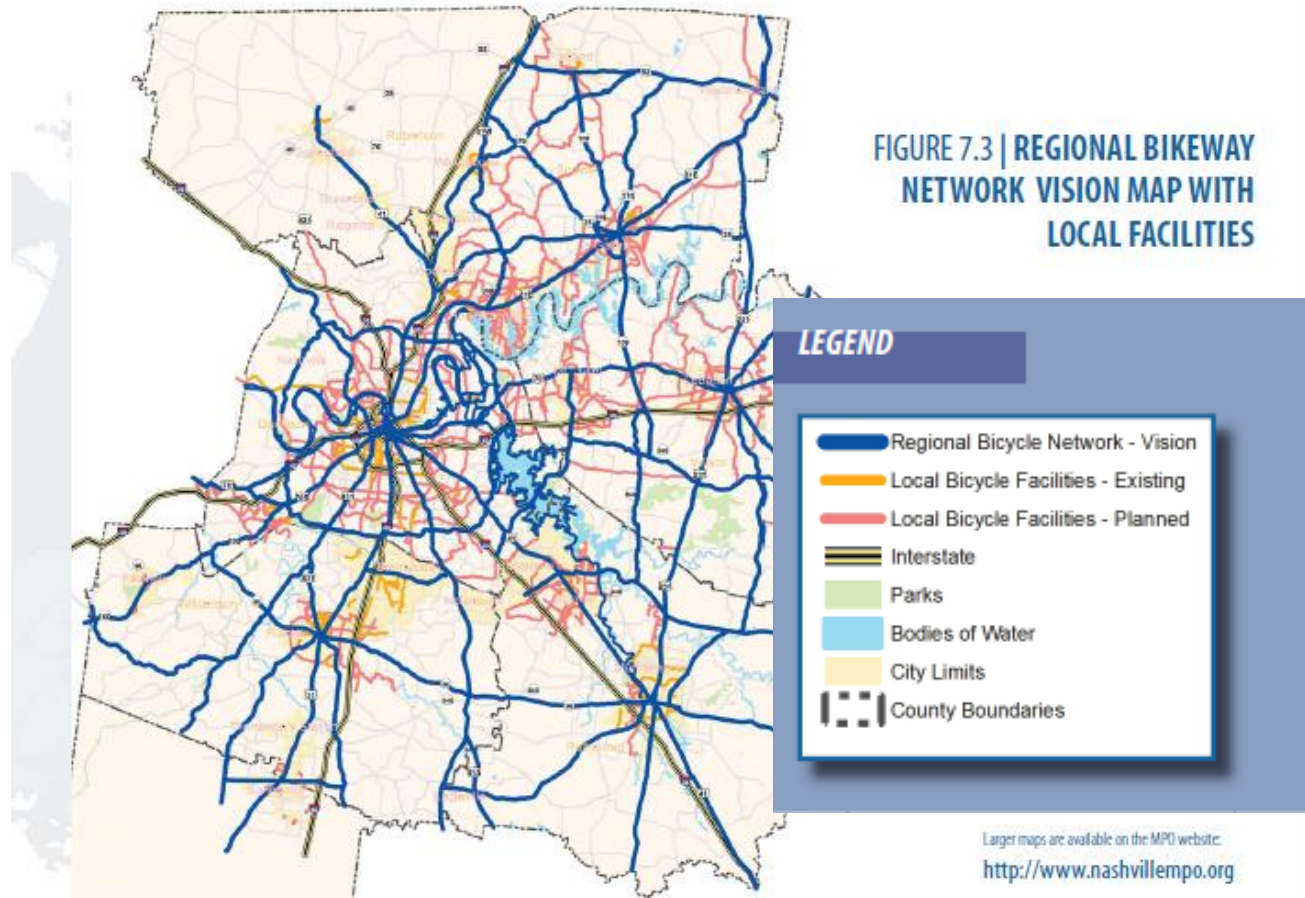
FIGURE 7.2 | REGIONAL BIKEWAY NETWORK VISION MAP WITH EXISTING FACILITIES

## LEGEND

- Regional Bicycle Network - Existing Bicycle Facilities
- Regional Bicycle Network - Proposed Bicycle Facilities
- Interstate
- Parks
- Bodies of Water
- City Limits
- County Boundaries

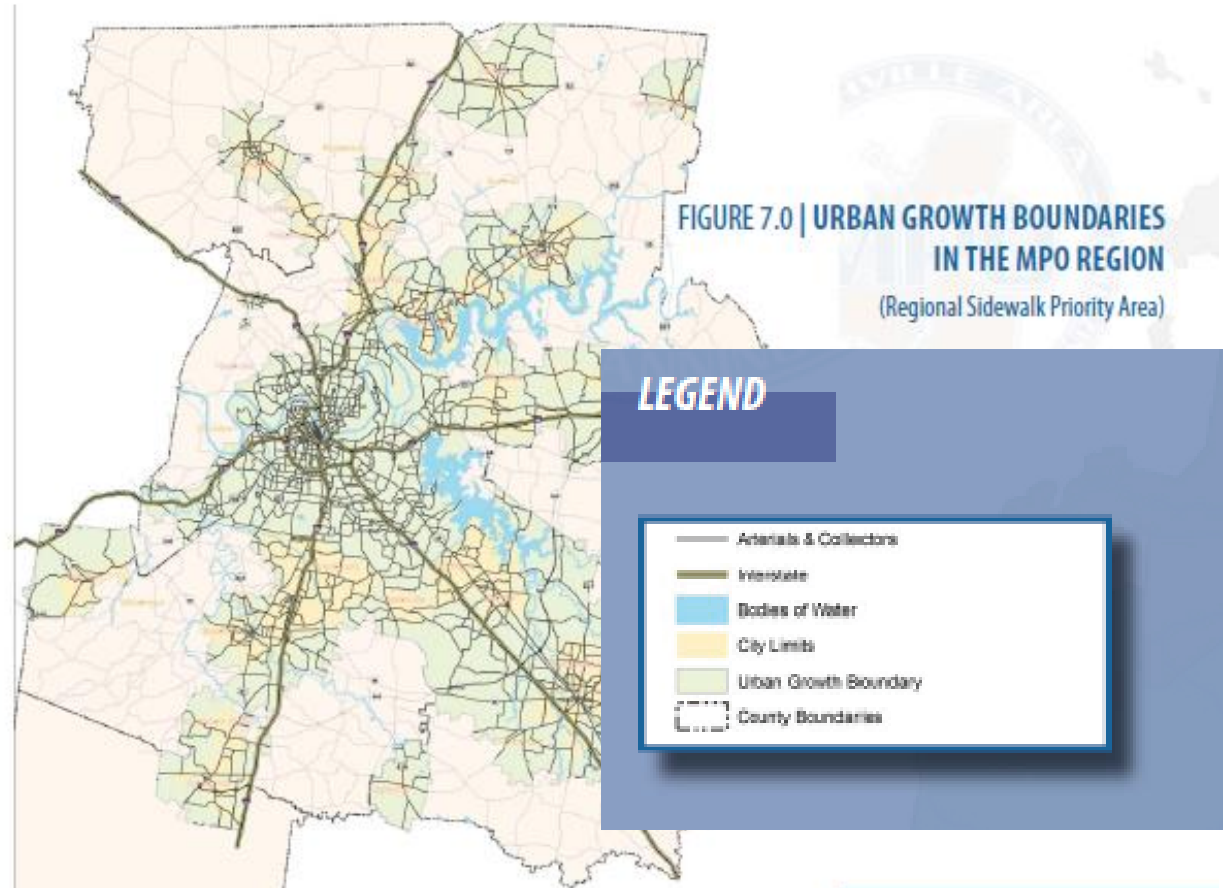
# Regional and Local Bicycle Networks

- ➡ Several local bicycle routes exist throughout the Nashville region
- ➡ Conflicts with the truck route network exists at both local and regional level
- ➡ Conflicts are most significant in Davidson County
- ➡ Conflicts are most manageable in Rutherford County



# Regional Truck Route and Sidewalk Network

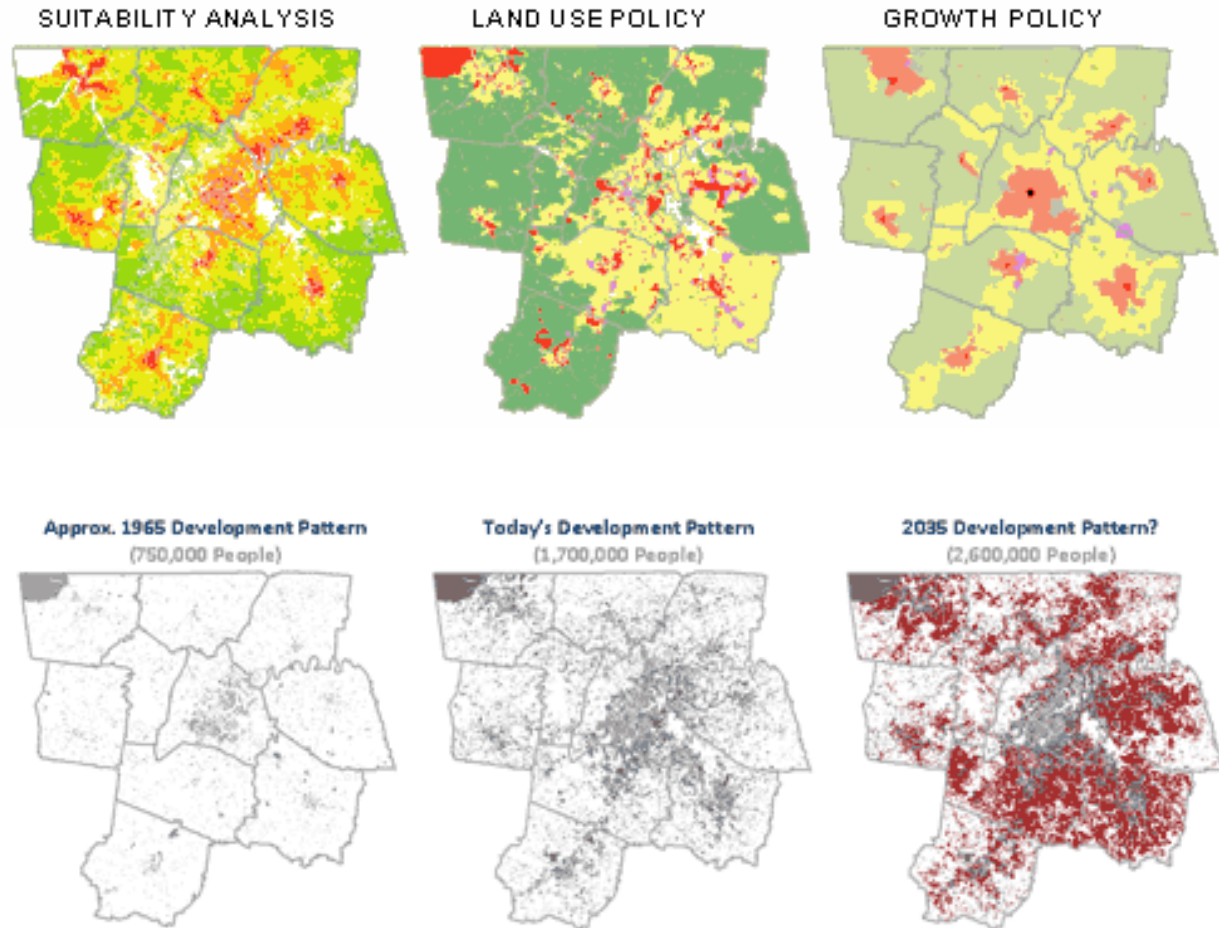
- ➔ Regional sidewalk network is extensive
- ➔ Special design considerations are warranted on:
  - sidewalk network segments adjacent to high truck volumes, including intersections





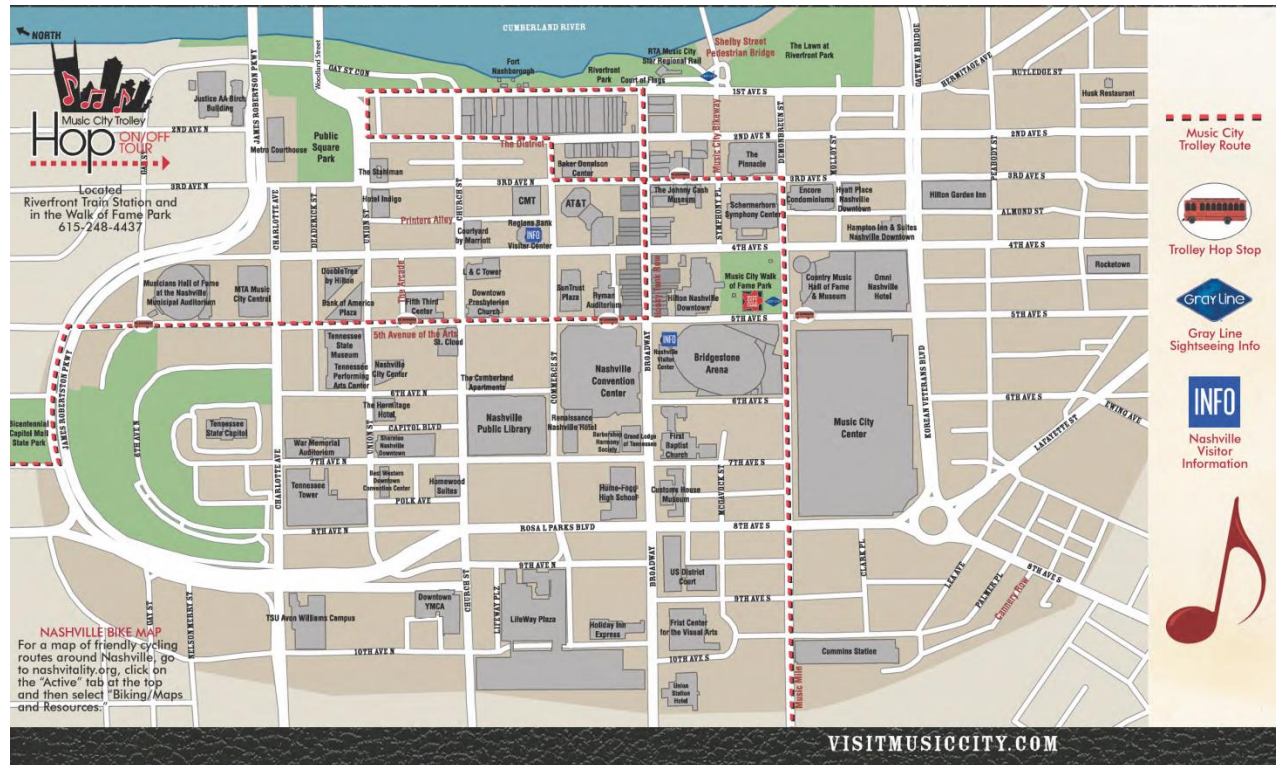
# Minimize Overlap with Sensitive Facilities and Locations

- ➡ Regionally-preferred growth scenarios
- ➡ Schools, hospitals, parks
- ➡ Environmentally sensitive locations
- ➡ High Title 6 population areas



# Minimize Overlap with Nashville Points of Interest

- ➡ Tourist attractions
- ➡ Museums
- ➡ Convention and music centers
- ➡ Trolley route
- ➡ Others?



# Elements of Truck Route Design

- ➡ No permanent physical features that prevent a large vehicle from negotiating a corner (e.g. traffic signal poles, fire hydrants, signs, landscaping)
- ➡ Signalization – spacing and timing considered
- ➡ 14 foot lanes preferred in industrial areas with heavy truck traffic. Usable shoulders preferably 12 feet
- ➡ Pavement widening on curves to accommodate off-tracking
- ➡ Stopping Sight Distance - Increased braking distance and decreased brake reaction time balances out
- ➡ Grade consideration - impacts vehicle speed, stopping distances, control for large trucks
- ➡ Vertical Clearance - minimum not be less than 16 feet

# Design Vehicle

## ➡ WB-50

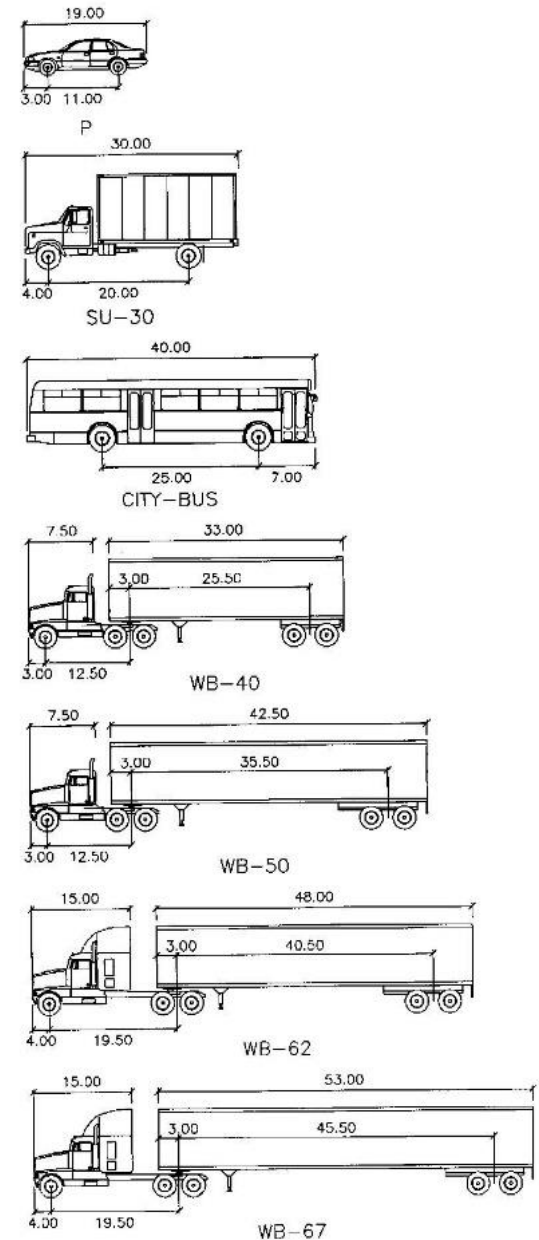
- Commonly acceptable design vehicle for many local roads and streets

## ➡ WB-62

- Acceptable to use in design for intersections where trucks larger than WB-62 vehicle operate
- Used by TDOT for the roundabout design located in industrial areas with high truck percentages

## ➤ WB-67

- Considered for intersections on state highways and industrialized streets with high truck volumes
- Minimum sized vehicle considered for intersections of freeway ramp terminals with arterial crossroads





# **DISCUSSION OF FREIGHT AND LAND USE ISSUES**

# Freight and Land Use Topics and Discussion Questions

- ➔ Zoning
- ➔ Research of local ordinances
- ➔ Permitted uses
- ➔ Location of freight intensive development
- ➔ Vehicular circulation
- ➔ Industrial site access
- ➔ Intersection turning radii
- ➔ Truck traffic restrictions
- ➔ Parking restrictions
- ➔ Loading requirements

Which topics are most important for supporting freight movement and why?

Which topics are most important for “freight as a good neighbor” with other modes?

What additional land use ordinances and specifications should be considered?

# Zoning

- ➔ Used by local governments to control the physical development of land
- ➔ Creates “zones” of land designated for specific uses such as residential, commercial, industrial, governmental, open space, etc.
- ➔ Impacts industrial location patterns critical to freight
- ➔ Coordination of land use and freight ensures that freight facilities are compatible with adjacent land uses and that land use decisions are consistent with freight mobility needs



# Research of Local Ordinances

➡ Freight-related zoning ordinances and subdivision regulations were analyzed in the following localities:

Brentwood

Columbia

Fairview

Franklin

Gallatin

Goodlettsville

Greenbrier

Hendersonville

Lebanon

LaVergne

Maury County

Millersville

Mt. Juliet

Metropolitan Nashville

Murfreesboro

Portland

Robertson County

Rutherford County

Smyrna

Springfield

Sumner County

White House

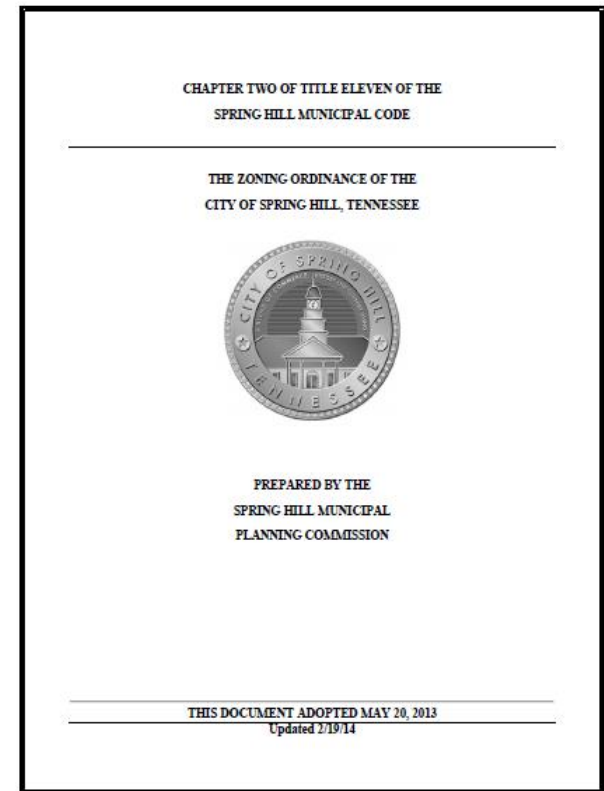
Williamson County

Wilson County

# Research of Local Ordinances

➡ The following land use policy categories related to freight emerged:

- Permitted uses
- Location of freight intensive development
- Vehicular circulation
- Industrial site access requirements
- Intersection turning radii requirements
- Truck traffic restrictions
- Parking area requirements related to industrial sites
- Loading zones/Loading space design standards/Location of loading entrance/exit
- Design Standards



# Permitted Uses

- [illegible]

[illegible]

# Location of Freight Intensive Development

- ➔ To encourage an orderly and systematic development design and provide for rational placement of freight related activities
- ➔ Promote clustering of industrial and commercial activities within areas specifically designed to accommodate the freight related activities
- ➔ Discourages vs. Encourages such uses along major thoroughfares
- ➔ Protect industrial activities and related developments against congestion
- ➔ Discourage adverse impacts to the surrounding area
- ➔ Generally, little “detail” found in the ordinances reviewed
- ➔ Driven by Land Use/Comprehensive Plans

# Location of Freight Intensive Development - Gallatin

- ➡ Zoning ordinance expanded freight provision through a **Planned Business Park District**
- ➡ The purpose of the Planned Business Park District is to foster stability and growth in light industry, warehouse and distribution and research/development, and similar industries that are enhanced by access to transportation networks...
- ➡ Recommends large contiguous land areas developed in a campus-like setting rather than on a lot-by-lot basis
- ➡ Does NOT permit trucking companies





# Vehicular Circulation

- ➞ Often addressed *Street Layout* and encourages rational placement of activities, parking, auto circulation, pedestrian circulation, and ingress and egress
- ➞ In industrial developments, public ways and other access routes shall be planned:
  - In connection with the grouping of buildings, location of rail facilities
  - Considering the provisions of alleys, truck loading and maneuvering areas, and walks and parking areas
  - To minimize conflict of movement between the various types of traffic

# Vehicular Circulation - Murfreesboro

- ➞ Requires all planned commercial, industrial developments and unit developments provide graphics that:
  - Define standards for pedestrian and vehicular circulation
  - Propose points of ingress and egress to the development
  - Diagram circulation indicating movement of vehicles, bicycles, goods, and pedestrians within/to/ from development
- ➞ Arrangement of public streets is addressed in business and industrial developments requiring:
  - Streets and other access routes planned to minimize conflict between various types of traffic
- ➞ Need for vehicular circulation regulations?



# Industrial Site Access

- ➡ Typically outlined in the *Street Layout* section of a district
  - ➡ Not addressed in all ordinances
- ➡ Calls for vehicular access to Industrial zones or PUDs from an arterial or collector street or from a “major thoroughfare”
- ➡ Aims to reduce intrusion of industrial traffic into non-manufacturing areas
- ➡ Common to restrict access through residential areas

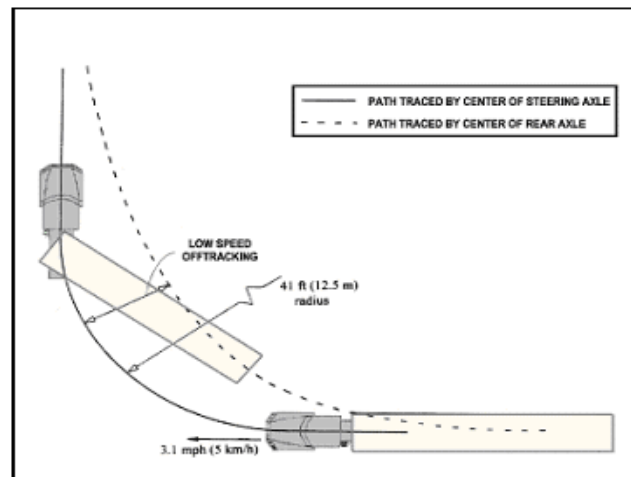
# Industrial Site Access - Columbia PUD

- ➡ Vehicular access to an industrial planned unit development shall be principally from an arterial or collector street
- ➡ Access to an industrial planned unit development shall be designed so as to minimize traffic conflicts
- ➡ All industrial planned unit developments shall be designed so as to reduce to an absolute minimum the flow of traffic moving to and from industrial areas through residential areas
- ➡ Need for industrial site access regulations?



# Intersection Turning Radii

- ➡ Roadway cross sections and design guidelines are usually part of a city's Major Thoroughfare or Roadway Plan
  - ➡ Some zoning ordinances also addressed intersection turning radii and vertical clearance under various design guideline headings
- ➡ Primary concern is to accommodate the turning movements, length, width, and weights of large trucks
- ➡ Major streets in Industrial areas need large turning radii and wide lanes



# Truck Traffic Restrictions – Metro Nashville Complete Streets Plan

- ➡ States truck traffic should not be routed through residential areas, except along freeways and major arterial streets
- ➡ *Vehicular Connectivity* section names local streets and all residential streets in its Employment Center and Impact Districts be avoided by truck traffic
- ➡ Truck routes should not pass through residential areas, hospitals, schools, or unique cultural, or recreational activities such as parks or museums

# Parking Requirements



- ➡ Number of parking spaces required in Industrial and Manufacturing areas is sometimes listed by stall and/or the number of staff
  - ➡ Some listed off-street parking by floor area (e.g. 5,000 square feet of outdoor space and between 1,000 and 3,000 square feet of indoor space)
- ➡ Many of the ordinances require appropriate landscaping, buffers, and screening of parking and loading
- ➡ Parking is an important factor for trucks

# Loading Requirements



- ➡ Loading guidelines for Industrial and Commercial uses are the largest category of freight related policy
  - ➡ Generally grouped with parking requirements
- ➡ Preference for loading/unloading behind buildings with access to alleyways and properly landscaped or screened activity



# Loading Requirements - Murfreesboro

- ➡ Loading spaces to be located on the same lot as the building and spaces should be calculated
- ➡ Designated as a loading space, not in a required front yard, and may be used for other purposes provided it is available for loading when needed
- ➡ Off-street loading spaces shall not be less than 10 feet in width and shall have an unobstructed vertical clearance of not less than 14 feet
- ➡ Minimum length of loading spaces shall be 50 ft
- ➡ Loading spaces and maneuvering areas shall be surfaced with asphalt, concrete, or other hard surface dustless material and provide for adequate drainage and to prevent release of dust
- ➡ What types of parking regulations are needed around the Nashville region?

Use	District	Number of Loading Spaces Required
Retail, service, wholesale or institutional establishment	Any district	1 for any such use with 10,000 sq.ft. or more of floor area plus 1 additional for each 20,000 sq.ft. of floor area or fraction thereof
Manufacturing, processing, storage or distribution establishment	L-I and H-I	1 for any such use with 20,000 sq.ft. or more of floor area plus 1 additional for each additional 20,000 sq.ft. of floor area or fraction thereof

# Wrap-Up and Next Steps

- ➡ Finalize regional freight profile
- ➡ Develop draft regional truck route recommendations
- ➡ Begin developing freight project and policy recommendations for the Nashville Area MPO
- ➡ Second FAC Meeting to be held in February 2015

# For Additional Project Information

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**Thank you for your participation  
today!**